

riable. In specimens of *C. plumaris* from the West Indies communicated by Agardh and Mertens, the pinnæ are very nearly twice as long as in other specimens from the East Indies and the Cape of Good Hope; and we must not forget that their extreme length (nearly 1 inch) forms the only specific difference of *Caulerpa longifolia*, an Australian species. With regard to the pinnæ of these perplexing forms I may further add, that, in not being attenuated at the base, they are completely separated from *Caulerpa taxifolia*.

PLATE II. fig. 1. *C. fissidentoides*, natural size. Fig. 2. A portion of the frond magnified.

II.—On the Genus *Truncatella*. By WILLIAM CLARK, Esq.

To the Editors of the *Annals of Natural History*.

GENTLEMEN,

Exmouth, June 8, 1853.

MR. WM. THOMPSON of Weymouth has this day favoured me with some lively examples of the rare *Truncatella Montagu* in its adult and young states, that is, before and after the truncature of the apex, and also others of the still rarer *Rissoa littorea* of authors; these, though sent by post in moistened weed, which however was quite dry when received, on being put into sea water immediately deployed the organs. The first has been described by the Rev. R. T. Lowe; many years ago, in the 5th volume of the 'Zoological Journal,' p. 303; and the *R. littorea* by the learned authors of the 'British Mollusca' in the Appendix, vol. iv. p. 265; still, as my account contains many new particulars, and notes a difference of opinion in respect of the generic position of *R. littorea*, I have thought it would be agreeable to some of your readers to have an accessorial description of these rare creatures from a fresh though inferior hand, especially as the present notes exhibit a comparative view of both animals, which were examined for two days in the same vase under very favourable circumstances. It is singular that these species, both undoubted Pectinibranchiata, should inhabit at high water level, in company with *Conovulus denticulatus* and *C. bidentatus*, both Pulmonifera, and are, as Mr. Thompson has informed me, "decidedly amphibious," being often found far above that limit; but I apprehend not more so than many of the minuter *Littorinae*, particularly *L. neritoides*, which are attached to rocks for long periods, perhaps during their whole existence, above the highest tides and even beyond the reach of the spray, living apparently on the floating saline moisture. It would appear then that the two

respiratory systems are in respect of these animals on the limits of their respective boundaries, and form the transitions from one to the other. Both the Pectinibranchiates escaped from the water as quickly or quicker than the Pulmonifera, but all the former, whether littoral or from deep water, have the same propensity; therefore this fact is of little value; yet, when strictly confined, the *Truncatella* continued lively for two days, whilst the *Conovuli* became torpid in twelve hours: perhaps we may conclude that these littoral Pectinibranchiata and the sub-littoral Pulmonifera are to a certain extent amphibious. All these species were taken mixed together in an estuary at Portland by Mr. Thompson, who states that they are very rare and local.

*Truncatella Montagu*, Lowe.

*Truncatella Montagu*, Brit. Moll.

Animal, when adult, occupying a yellow or whitish subcylindrical shell of four flattish volutions deeply divided, and furnished with close-set somewhat irregular costellæ; when young, before the apex is truncated, of 6–8 smoother and more taper gyrations; the peristome in the completed shell is entire, having the outer lip blunt and a little reflexed; with respect to colour, it is of the palest yellowish white, aspersed with very minute flake-white points, particularly the foot, with a patch of pink on the neck caused by the colour of the buccal corneous plates showing through the pellucidity of the tissue. The mantle is plain and even with the shell, but rather tumid at the margin: I did not observe much approach to the mantellar collar of the *Helices*. The rostrum is ridged or annulated, long, very broad, flat, emarginate at the end, forming on each side a curved compressed auricle, and cloven underneath vertically and slightly crozially; buccal apparatus reddish pink; the tongue at its deeply seated terminus displays a pair of white jaws; it can be seen through the œsophagus, and is accompanied on each side by a linear streamer floating loose posteally. I am not certain whether these narrow tape-like additions proceed from the buccal membrane or tongue,—I think the latter,—or they may possibly be salivary glands.

The branchial plume is single, of an elongated kidney-shaped figure, and has the usual constriction or sinus at the end nearest to the heart; it can be detected with high powers in sunlight, through the body volution of pale, clear, thin shells; all the rest of the organs, including the single pale brown ganglion on each side the œsophageal collar on its upper surface, may be easily seen through the hyaline tissue of the neck and head. The neck and rostrum from its corrugations can be protruded to an extra-

ordinary extent beyond the aperture; the head far exceeds the tentacula in length; these are short, flat, broad, subtriangular, and diverge greatly, scarcely forming an angle of  $25^{\circ}$ ; the eyes are large and black, and have *white* prominent pupils, which visibly dilate and contract. I have never observed such in any mollusk, though similar ones may have escaped notice; they are placed a little nearer to the base than the middle of their lower half, not on pedicles, but quite flat on the centre of subsemicircular expansions of the outer sides of the tentacula, with an external tendency. Foot thick, steep, oval, very little extended, and on the march maintaining postceally and antecally the oval contour, with a vermicular motion, like an advance of one half to the other; this action gives an apparent crease simulating an incised transverse line, but on the step being completed the foot becomes entire; it carries very postceally on a plain upper lobe, without an appendage of any sort, a narrow, irregularly oval, light yellow corneous operculum, rounded at the outer margin and basally, straighter next the columellar side, and contracted at the upper angle; the nucleus of the spire is at the base, with a single turn, which, though indistinct, is in certain lights, with good glasses, quite visible; its surface is coarse and corrugated, and marked with rough, somewhat oblique, not equidistant striæ or ridges. The rostrum is medially longitudinally finely grooved, which character extends through the neck as far as can be seen, probably as a guide channel to the branchial leaf. The neck, with this exception, is plain. The animal is not shy, but does not creep with much rapidity; its progression is a modification of the littorinidan vermicular character. That *Truncatella* is a littorinidan genus admits of no doubt; the very paucispiral operculum, pair of jaws, and single branchial plume sufficiently attest this determination; its position is of course closely connected with *Rissoa*.

*Truncatella littorea*, Della Chiaje.

*Truncatella littorina*, Philippi, Moll. Siciliæ.

*Rissoa et Assiminia littorea*, nonnull.

Animal inhabiting a minute pale yellow shell, not  $\frac{1}{10}$ th of an inch high, or in transverse measure, of four rather tumid volutions, the first three of small areas, the body being more than  $\frac{3}{4}$ ths of the bulk of the whole; under powerful lenses in some specimens the rudiments of the longitudinal costellæ or striæ of *Truncatella Montagu* are visible, an important corroborative character; the peristome is complete, but sharp-edged. The animal is of the palest yellowish white, sprinkled with excessively minute flake-white points, particularly on the sole of the foot, with

the slightest tinge of brown on the neck, the effect of that colour in the buccal plates declaring itself through the membranes. Mantle plain and thickened at the margin. Rostrum annulated, but not so long in proportion as in its congener, broad, flat, emarginate at the extremity, forming on the right and left a flattish arcuated lobe; beneath, vertically and slightly crossially cloven, having the usual corneous buccal plates, tongue, and pair of white jaws. Tentacula very short, broad, flat, rounded at the end, divergent, both in quietude and on the march to almost right angles, with large eyes and dilatable white pupils as in the preceding species, placed not positively at their terminations, but on the centre of the membrane, at some distance from the extreme points: this was particularly remarked; but the very powerful lens used would give them that appearance, which of course would not be so apparent when viewed by a common glass; though, nearer the extremity of the tentacula, the characters are precisely those of *T. Montagu*, and a similar white pupil is a singular coincidence. The neck, as in its congener, has the same longitudinal groove or canaliferous lines running medially through the rostrum and neck to the branchial leaf, and is doubtless an aqueduct. The neck and rostrum in quietude appear short; they are so in *T. Montagu*, but can in like manner be greatly extended, though not proportionately so much; for these reasons the branchial streamlets and nervous ganglions were not seen: but I distinctly observed, through the tenuity of the shell, the kidney-shaped respiratory apparatus with the constriction at the end nearest to the heart, and clearly detected the fine blood-vessels of the reniform loop ranged in transverse order. The only difference observable in the two species is, that in this, the leaf appears of a shorter or more oval contour, more compact, and with a less deep constriction; the neck and rostrum have no additions beyond the groove and annulations. Foot thick, having a more elongated oval shape than in its congener, and, as in it, on the march is rounded in front and behind; it simulates the same transverse crease or line on the sole, and has a like character of progression. There is a simple, almost terminal, but decided operculigerous lobe that bears a light corneous suboval operculum, which in all points, except being of lighter colour and broader oval, is identical with that organ in the preceding species to which I refer; indeed so great is the similarity of the two animals, that I might by a reference have condensed the greater part of this account; but as these notes are decidedly comparative of two particular creatures, I have, for impression, given them *in extenso*. The animal is free, but deliberate on the march, and carries its shell very upright, at near an angle of  $75^{\circ}$ – $80^{\circ}$  from the horizon.

It will be seen that this account is essentially the same as the one in the 'British Mollusca,' except that the learned authors have proposed to deposit it in *Assiminia*. I think its generic position is with *Truncatella*. A comparison of the two species will show that they are not only identical in the principal characters, but almost all the minutiae are congruous. Indeed I may say, that these gentlemen differ little more from me than in the name, '*Assiminia*,' which I would gladly accept for *Truncatella* for the reasons below, if such a change in nomenclature were not forbidden by strict conventional laws. As far as I can learn, not having seen the animal of *A. Grayana*, the genus *Assiminia* scarcely varies, if at all, from *Truncatella*; at least the generic characters given in the 'British Mollusca' are absolutely those of that genus, except some difference in the position of the eyes, which I shall not be surprised to find turns out greater in terms than in reality.

I wish some naturalist would send me *here* some live examples of *A. Grayana*; they inhabit the Greenwich and other eastern marshes about London: if sent by post the same evening when taken, in a small, strong, wooden, *turned* box of the size of half-a-crown, with a little weed or dry moss only slightly moistened in the water of their habitat, they would probably arrive sufficiently lively for examination. Even the shells, if with the opercula, would enable me to give a qualified opinion on their position.

The generic title of *Truncatella* is objectionable, as being in this case too distinctive, and therefore only strictly applicable to *Truncatella Montagu*, whilst two, if not three, of our indigena, *T. littorea*, *T. Grayana*?, and *T. nitidissima*?, are never truncate at the apex; still, this appellation has been so long established, that it is better to continue it than add new names to science:—the latter remarks are M. Philippi's sentiments. We have here a striking illustration of the value of conchological made genera, as, in consequence, three species of one genus have received as many generic titles, from their shells exhibiting a subcylindrical, a conical, and a discoid form (if the *Skenea*? *nitidissima* of authors is the *T. atomus*? of Philippi, as is probably the case).

I see no reason to doubt M. Philippi's *Truncatella littorina* (Moll. Sicil. vol. ii. p. 133. tab. 24. fig. 2) being our present species; the description and figure entirely accord.

It is stated by me in a former paper in the 'Annals' that this is an apocryphal British species;—the refutation is now sufficiently complete.

I am, Gentlemen,

Your most obedient servant,

WILLIAM CLARK.